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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,523

02/23/2004

Allan J. Kuchinsky

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EXAMINER

LONG, ANDREA NATAE

ART UNIT

PAPER NUMBER

2176

NOTIFICATION DATE

DELIVERY MODE

02/09/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/784,523	<b>Applicant(s)</b> KUCHINSKY ET AL.	
	<b>Examiner</b> Andrea N. Long	<b>Art Unit</b> 2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-29 and 51-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-29 and 51-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

**Applicant's Response**

In Applicant's Response dated 11/03/2008, Applicant amended Claims 8 and 58 and argued against all rejections previously set forth in the Office Action dated 08/01/2008.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 8-11, 18-23, 26-29, 51-53, and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eric Infanti (Microsoft Visio 2002: 10 Minute Guide, 2002), hereinafter Infanti in view of Applicant's Admitted Prior art, hereinafter "AAPA" in further view of Chung et al (Kleisli: a new tool for data integration in biology, 1999), hereinafter "Chung" .**

**As to independent claim 8**, Infanti teaches a system for manipulating data comprising (Visio):

a library of re-usable stencils for representing interactions; (page 13, 156-157, Figure 1.7);

means for selecting stencils to be populated with specific information (creating a stencil);

means for assigning specific data to selected stencils (dragging shapes to the stencil); and

a display for displaying stencils with the assigned specific data (opening the stencil) (pages 153-157).

Infanti teaches where Visio is used to represent a database model, such as entities and relationships in a database model diagram, objects in the physical world, and objects in a organizational hierarchy (page 12), but does not explicitly teach where the data and information is biological data or biological information or a local format infrastructural layer configured to transform specific biological information represented in a text, data or graphical format to one or both of the other text, data or graphical formats that the specific biological information is not already represented in.

AAPA teaches Network diagrams which are used to represent biological activity, wherein biological entities and the interrelationships between them are represented graphically (page 1, paragraph [0004]. AAPA additionally teaches where Visio is a leading general-purpose diagramming product used in creating network diagrams (page 3, paragraph [0008]).

Chung teaches a local format infrastructural layer configured to transform specific biological information represented in a text, experimental data or biological diagram format to a local format that provides a common format, such that data from said text format, said experimental data format and said biological diagram format are all represented in said local format and are exchangeable and useable together (pages 352 and 355 – pulls data from different databases of different formats and transforms the data to a common format CPL).

Infanti, AAPA, and Chung all teach representing data in visual formats for display to a user, for better interpretation of the data. It would have been obvious to one skilled in the art at the time the invention was made to substitute the manipulating of data and information as that of

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Infanti with biological data and information to represent and manipulate a network diagram efficiently while allow the data to be transformed from one viewable state such as textual to graphical to give that data meaning and make it more understandable.

**As to dependent claim 9**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches means for connecting common elements of said stencils with assigned specific biological data to display a biological diagram having said stencils as components thereof (page 12-14).

**As to dependent claim 10**, Infanti teaches means for designing and saving additional stencils not previously contained in said library (pages 153-157).

**As to dependent claim 11**, Infanti teaches means for modifying stencils contained in said library (page 151).

**As to dependent claim 18**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches means for navigating to data selected from said specific biological data and displayed on at least one of said stencils (page 113-114).

**As to dependent claims 19 and 20**, note the discussion above in claim 8, Infanti in view of AAPA and Chung teaches a systems for selecting stencils to be populated with biological information. Infanti also teaches wherein Visio stencils are files (page 13). While Infanti,

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AAPA or Chung do not disclose comparing two stencils and displaying the difference, this method is well known in the art, such as that of the Diff tool, which compares two files and outputs the differences between the two files.

It would have been obvious to one skilled in the art at the time the invention was made to have included the use of a comparison tool such as the Diff tool to compare stencils to provide visual representation of differences in stencils that would lead to updates and managing of stencils in a library.

**As to dependent claim 21**, note the discussion above in claim 19. Infanti additionally teaches means for mapping between said selected stencils containing specific biological data and an existing biological diagram (pages 113-114).

**As to dependent claim 22**, Infanti teaches adding elements to a stencil on said canvas (pages 148-150).

**As to dependent claim 23**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches means for merging said stencils with a biological network and means for displaying said stencils merged with said biological network (pages 12-13).

**As to dependent claim 26**, Infanti teaches means for linking the displayed stencils with other sources of biological data from which the specific biological data was extracted, using a local formatting language (pages 93,113-114). As discussed above in claim 8, Chung teaches the

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using a local formatting language of said local format infrastructural layer to transform textual data to graphical data (page 1) to give data meaning and make it more understandable.

**As to dependent claims 27, 28, and 29**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches means for annotating at least a portion of at least one of said stencils, wherein the annotating includes text and overlaying annotations on a biological diagram (pages 63-64).

**As to dependent claim 51**, Infanti in view of AAPA teaches wherein each stencil in the library of re-usable stencils comprises:

graphical elements (shapes) representing entities and at least one interaction; each said graphical element comprising semantics representative of a particular type of biological entity or interaction; and

slots for providing specific biological information, including specific entity names and directionality of interactions (page 12-13, 63-64).

**As to dependent claim 52**, note the discussion of claim 8, Infanti teaches a visual grammar (stencil). Infanti does not forcefully teach wherein a visual grammar is represented in a local format of said local format infrastructural layer, enabling interactive functions to be performed among biological diagrams, textual documents and experimental data. AAPA discloses that experimental data is well-known and common method used to help biologist create and manipulate information related to biological networks. Chung teaches a visual grammar is

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represented in a local format of said local format infrastructural layer, enabling interactive functions to be performed among biological diagrams, textual documents and experimental data (page 352 355).

It would have been obvious to one skilled in the art at the time the invention was made to have included experimental data in the system of Infanti in view of AAPA and Chung to provide analyzed information to a result for comparison.

**As to dependent claim 53**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches wherein when said slots are filled with specific biological information, said specific biological information is automatically added to the local format (pages 63-64).

**As to dependent claim 54**, note the discussion above with regards to the combining of Infanti and AAPA. Infanti in view of AAPA teaches wherein said stencils can exist at multiple levels of abstraction, ranging from molecular interactions to higher-level biological concepts (page 148).

**As to dependent claim 55**, Infanti teaches wherein stencils can be composed hierarchically to compose relatively more complex stencils from relatively smaller stencils (153-154).

**As to dependent claims 56 and 57**, Infanti teaches wherein said stencils are collaboratively useable among multiple users by sharing of filled in stencils (page 148).



**Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Infanti in view of AAPA in further view of Chung as applied to claim 8 above, and further in view of Apprentice Systems—Microsoft Case Study (August 2001), hereinafter “Flowtronex”.**

**As to dependent claim 12**, Infanti teaches a system for manipulating data (Visio). Infanti does not teach wherein the data is biological data and designing and associating rules with stencils. AAPA teaches the building of a Network diagram through Visio. Chung teaches a local format infrastructural layer. Flowtronex teaches an overlay onto Visio that designs and applies rules to Visio shapes (page 2 and 3).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the system of diagramming biological data of Infanti in view of AAPA and Chung with the designing and applying of rules to Visio master shapes to eliminate manual processing by creating an automatic process.

**As to dependent claims 13, 14, and 15**, Infanti teaches a system for manipulating data (Visio). Infanti does not teach wherein the data is biological data and means for rule checking to validate interaction represented by a stencil and checking those roles against additional data within a pre-existing diagram. AAPA teaches the building of a Network diagram through Visio. Chung teaches a local format infrastructural layer. Flowtronex teaches an overlay onto Visio that designs and applies rules to Visio shapes. In addition, Flowtronex scans a Visio drawing and performs checks to prevent illegal connections as applied to the knowledge generated by the Apprentice Mentor tool (page 2 and 3).

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It would have been obvious to one skilled in the art at the time the invention was made to have combined the system of diagramming biological data of Infanti in view of AAPA and Chung with the checking of rules of Flowtronex to eliminate illegal connections.

**As to dependent claim 16**, note the discussion above of claim 14, Infanti teaches a system for manipulating data. Infanti does not disclose wherein said additional data comprises experimental data. AAPA discloses that experimental data is well known and common method used to help biologist create and manipulate information related to biological networks. It would have been obvious to one skilled in the art to include experimental data in the system of Infanti in view of AAPA and Chung in further view of Flowtronex to provide analyzed information to a result for comparison.

**As to dependent claim 17**, note the discussion above of claim 14, Infanti teaches a system for manipulating data. Infanti does not teach rule checking and displaying an overlay of the results on a network diagram. Flowtronex teaches an overlay onto Visio that design and assigns rules to Visio shapes. While not forcefully disclosed by Flowtronex, it is reasonable to one skilled in the art to have results of the rule checking overlay on the network diagram, such as highlighting, to visually depict errors in the diagram for correction.

**Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Infanti in view of AAPA in further view of Chung as applied to claim 8 above, and further in view**

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**of Artymuik et al (The Use of Graph Theoretical Methods for the Comparison of the Structures of Biological Macromolecules, 1995), hereinafter “Artymuik”.**

As to dependent claims 24 and 25, Infanti teaches a system with stencils for creating a diagram. Infanti however does not disclose comparing a plurality of stencils, using graph theoretic methods. AAPA discloses wherein there a rich history of graph theoretic network tools used to analyze the properties of biological networks exists {page 4 paragraph [0004]}. It is reasonably suggestive to one skilled in the art to have means for comparing a plurality of said stencils, using graph theoretic methods to analyze the differences among stencils. Artymuik teaches comparing one graph with another to determine the structural relationships that exist between them (identification of a sub graph) (page 84).

It would have been obvious to one skilled in the art at the time the invention was made to have included the use of graph theoretic methods to compare a plurality of stencils for examining and comparing of macromolecule structures.

**Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eric Infanti (Microsoft Visio 2002: 10 Minute Guide, 2002), hereinafter Infanti in view of Applicant's Admitted Prior art, hereinafter "AAPA".**

**As to independent claim 58**, Infanti teaches a library of re-usable stencils for representing interactions; (page 13, 156-157, Figure 1.7);

means for selecting stencils to be populated with specific information (creating a stencil); means for assigning specific data to selected stencils (dragging shapes to the stencil); and a display for displaying stencils with the assigned specific data (opening the stencil) (pages 153-157).

Infanti teaches wherein each stencil in the library of re-usable stencils comprises: graphical elements (shapes) representing entities and at least one interaction; each said graphical element comprising semantics representative of a particular type of entity or interaction; and

slots for providing specific information, including specific entity names and directionality of interactions (page 12-13, 63-64).

Infanti teaches where Visio is used to represent a database model, such as entities and relationships in a database model diagram, objects in the physical world, and objects in a organizational hierarchy (page 12), but does not explicitly teach where the data and information is biological data or biological information .

AAPA teaches Network diagrams which are used to represent biological activity, wherein biological entities and the interrelationships between them are represented graphically (page 1,

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paragraph [0004]. AAPA additionally teaches where Visio is a leading general-purpose diagramming product used in creating network diagrams (page 3, paragraph [0008]).

It would have therefore been obvious to one skilled in the art at the time the invention was made to have included biological information into the system of Visio to represent biological information in a manner easily interactive for users.

### ***Response to Arguments***

Applicant's arguments with respect to claims 8, 12, 17, 19, 20, 26, and 51-53 have been considered but are moot in view of the new ground(s) of rejection.

With regard to claims 9, 15, 18, 21, 23, 26, 29, 51, 53, and 54 the Applicant appears to assert that Infanti fails to teach the claim limitations due to Infanti not explicitly teaching wherein the stencils are representations of biological data or information and therefore cannot meet the limitation of the claims.

It should be noted that AAPA discloses that Visio which is the software tool that is being utilized in Infanti is used for building network diagrams from graphical building blocks. AAPA additionally teaches software for analyzing networks includes tools for inferring biological networks from experimental data in the context of biological networks, which should be taken into consideration when understanding the Examiner's rejection of the claim limitations with regard to Infanti.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea N. Long whose telephone number is 571-270-1055. The examiner can normally be reached on Mon - Thurs 6:00 am to 3:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on 571-272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrea N Long/  
Examiner, Art Unit 2176